```
     FILE 'HCAPLUS' ENTERED AT 16:30:16 ON 17 FEB 2009
L1          3366 S HYDROXYALKYLSTARCH OR HYDROXYETHYLSTARCH OR HYDROXYPROPYLSTAR
L2         60934 S BRANCHING
L3          7364 S DEGREE OF SUBSTITUTION
L4             1 S L1 AND L2 AND L3
L5            10 S L1 AND L2
L6           160 S L1 AND L3
L7            10 S L5 AND (PY<2003 OR AY<2003 OR PRY<2003)
L8        288748 S SUBSTITUTION
L9           124 S L6 AND (PY<2003 OR AY<2003 OR PRY<2003)
L10         5032 S HYPERBRANCHED
L11            0 S L9 AND L10
L12        70815 S SIDE CHAIN
L13            0 S L9 AND L12
L14      2091372 S PLASMA OR BLOOD OR (PERITONEAL DIALYSIS)
L15           42 S L9 AND L14
L16        56860 S GLYCOGEN
L17            0 S L15 AND L16
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=> file hcaplus
COST IN U.S. DOLLARS                                    SINCE FILE      TOTAL
                                                           ENTRY    SESSION
FULL ESTIMATED COST                                         0.22       0.22

FILE 'HCAPLUS' ENTERED AT 16:30:16 ON 17 FEB 2009
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FILE COVERS 1907 - 17 Feb 2009  VOL 150 ISS 8
FILE LAST UPDATED: 16 Feb 2009  (20090216/ED)

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This file contains CAS Registry Numbers for easy and accurate
substance identification.

=> s hydroxyalkylstarch or hydroxyethylstarch or hydroxypropylstarch or
((hydroxyalkyl or hydroxyethyl or hydroxypropyl)(w)starch)
             6 HYDROXYALKYLSTARCH
           290 HYDROXYETHYLSTARCH
            95 HYDROXYPROPYLSTARCH
         27139 HYDROXYALKYL
        117509 HYDROXYETHYL
         51399 HYDROXYPROPYL
        186202 STARCH
          3093 (HYDROXYALKYL OR HYDROXYETHYL OR HYDROXYPROPYL)(W)STARCH
L1        3366 HYDROXYALKYLSTARCH OR HYDROXYETHYLSTARCH OR HYDROXYPROPYLSTARCH
               OR ((HYDROXYALKYL OR HYDROXYETHYL OR HYDROXYPROPYL)(W)STARCH)

=> s branching
L2       60934 BRANCHING

=> s degree of substitution
       4541182 DEGREE
        288748 SUBSTITUTION
L3        7364 DEGREE OF SUBSTITUTION
                 (DEGREE(1W)SUBSTITUTION)

=> s l1 and l2 and l3
L4           1 L1 AND L2 AND L3

=> s l1 and l2
```

```
L5          10 L1 AND L2

=> s l1 and l3
L6         160 L1 AND L3

=> s l5 and (PY<2003 or AY<2003 or PRY<2003)
      22983360 PY<2003
       4503971 AY<2003
       3972866 PRY<2003
L7          10 L5 AND (PY<2003 OR AY<2003 OR PRY<2003)

=> d l7 1-10 ti bas bib
'BAS' IS NOT A VALID FORMAT FOR FILE 'HCAPLUS'

The following are valid formats:

ABS --------- GI and AB
ALL --------- BIB, AB, IND, RE
APPS -------- AI, PRAI
BIB --------- AN, plus Bibliographic Data and PI table (default)
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CBIB -------- AN, plus Compressed Bibliographic Data
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DALL -------- ALL, delimited (end of each field identified)
DMAX -------- MAX, delimited for post-processing
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FBIB -------- AN, BIB, plus Patent FAM
IND --------- Indexing data
IPC --------- International Patent Classifications
MAX --------- ALL, plus Patent FAM, RE
PATS -------- PI, SO
SAM --------- CC, SX, TI, ST, IT
SCAN -------- CC, SX, TI, ST, IT (random display, no answer numbers;
              SCAN must be entered on the same line as the DISPLAY,
              e.g., D SCAN or DISPLAY SCAN)
STD --------- BIB, CLASS

IABS -------- ABS, indented with text labels
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IBIB -------- BIB, indented with text labels
IMAX -------- MAX, indented with text labels
ISTD -------- STD, indented with text labels

OBIB -------- AN, plus Bibliographic Data (original)
OIBIB ------- OBIB, indented with text labels

SBIB -------- BIB, no citations
SIBIB ------- IBIB, no citations

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HITIND ------ IC, ICA, ICI, NCL, CC and index field (ST and IT)
              containing hit terms
HITRN ------- HIT RN and its text modification
HITSTR ------ HIT RN, its text modification, its CA index name, and
              its structure diagram
HITSEQ ------ HIT RN, its text modification, its CA index name, its
              structure diagram, plus NTE and SEQ fields
FHITSTR ----- First HIT RN, its text modification, its CA index name, and
              its structure diagram
FHITSEQ ----- First HIT RN, its text modification, its CA index name, its
              structure diagram, plus NTE and SEQ fields
```

KWIC -------- Hit term plus 20 words on either side
OCC --------- Number of occurrence of hit term and field in which it occurs

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ENTER DISPLAY FORMAT (BIB):ti abs bib

L7 ANSWER 1 OF 10 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Highly-branched, low substituted starch products for use as plasma expanders
AB The invention concerns modified hydroxyethyl and hydroxypropyl starches for clin. use as plasma expanders that have a branching degree of 8-20 mol%, a substitution degree (MS) of 0.05-0.3 and mol. weight of 10,000-450,000. The products are used in peritoneal dialysis. According to expts. with rats, the products deplete faster from liver, spleen, lung and kidney than conventional starch products.
AN 2004:198158 HCAPLUS <<LOGINID::20090217>>
DN 140:223241
TI Highly-branched, low substituted starch products for use as plasma expanders
IN Henning, Klaus
PA Fresenius Kabi Deutschland G.m.b.H., Germany
SO Ger. Offen., 5 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	DE 10237442	A1	20040311	DE 2002-10237442	20020816	<--
	DE 10237442	B4	20040819			
	WO 2004022602	A1	20040318	WO 2003-EP8411	20030730	<--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW					
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
	AU 2003251668	A1	20040329	AU 2003-251668	20030730	<--
	EP 1530593	A1	20050518	EP 2003-793660	20030730	<--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK					
	CN 1675248	A	20050928	CN 2003-819356	20030730	<--
	CN 100340578	C	20071003			
	JP 2005539107	T	20051222	JP 2004-533291	20030730	<--
	US 20060032400	A1	20060216	US 2005-524424	20050722	<--
	HK 1080872	A1	20080627	HK 2006-100567	20060113	<--
PRAI	DE 2002-10237442	A	20020816	<--		
	WO 2003-EP8411	W	20030730			

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 2 OF 10 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Characterization of the substituent distribution in hydroxypropylated potato amylopectin starch
AB The distribution of substituents in hydroxypropylated potato amylopectin starch (amylose deficient), modified in a slurry of granular starch (I) or in a polymer 'solution' of dissolved I, was investigated. The molar substitution (MS) was determined by 3 different methods: 1H-NMR spectroscopy, gas-liquid chromatog. (GLC) with mass spectrometry, and a colorimetric method. The MS values obtained by 1H-NMR spectroscopy were higher than those obtained by GLC-mass spectrometry anal. and colorimetry. The relative ratio of 2-, 3-, and 6-substitution, as well as un-, mono-, and disubstitution in the anhydroglucose unit (AGU), were determined by GLC-mass spectrometry anal. The results showed no significant difference in molar distribution of hydroxypropyl groups in the AGU between the 2 derivs. For anal. of the distribution pattern along the polymer chain, the starch derivs. were hydrolyzed by enzymes with different selectivities. Debranching of the polymers indicated that more substituents were located in close vicinity to branching points in granular I than in dissolved I. Simultaneous α-amylase and amyloglucosidase hydrolysis of granular I liberated more unsubstituted glucose units than the hydrolysis of dissolved I, indicating a more heterogeneous distribution of substituents in granular I.
AN 2000:644978 HCAPLUS <<LOGINID::20090217>>
DN 133:323216
TI Characterization of the substituent distribution in hydroxypropylated potato amylopectin starch
AU Richardson, Sara; Nilsson, Gunilla S.; Bergquist, Karl-Erik; Gorton, Lo; Mischnick, Petra
CS Department of Analytical Chemistry, Lund University, Lund, S-221 00, Swed.
SO Carbohydrate Research (2000), 328(3), 365-373
CODEN: CRBRAT; ISSN: 0008-6215
PB Elsevier Science Ltd.
DT Journal
LA English
RE.CNT 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 3 OF 10 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Development of a statistical model for the formation of poly[acryloyl hydroxyethyl starch] microspheres
AB To develop a math. model for predicting the mol. weight between crosslinks, Mc, of poly[acryloyl hydroxyethyl starch] (Ac-HES) microspheres system and to identify and evaluate the key microsphere preparation parameters which affect the Mc of the formed microsphere structure based on the developed model. Line probability generating functions (LPGFs) based on the classical branching theory were used to derive a model for the calcn. of Mc for the Ac-HES system. Based on the developed model, simulation was made to study the effects of the microsphere preparation variables on Mc of the formed microspheres. The process variables were the degree of derivatization (DD) of the Ac-HES, the molar ratio (MR) of the Ac-HES to acrylamide monomer, the fractional conversion of the unsatn. (α), the initiator efficiency (f), the molar concentration of initiator (I), the fraction of intramol. cyclization (c), and the total weight of the reactable monomer and polymer (s). A model to describe the crosslinking reaction of Ac-HES system and predict Mc was developed. Simulation based on the model showed that Mc decreased as α increased and reached a limiting value before total conversion.

At constant α, Mc initially decreased with MR to a min. and then increased with MR; while Mc decreased monotonically with DD. I and c affected Mc only at very low α and changes in s and f had no effect on Mc. Simulation based on the model suggested that the most important microsphere preparation parameters influencing Mc of the Ac-HES system are the number of functional groups on the Ac-HES (DD) and the stoichiometry (MR) of the crosslinking reaction.

AN 1997:301832 HCAPLUS <<LOGINID::20090217>>
DN 127:23666
OREF 127:4525a,4528a
TI Development of a statistical model for the formation of poly[acryloyl hydroxyethyl starch] microspheres
AU Huang, L. K.; Mehta, R. C.; Deluca, P. P.
CS ISIS Pharmaceuticals, Carlsbad, CA, 92008, USA
SO Pharmaceutical Research (1997), 14(4), 469-474
CODEN: PHREEB; ISSN: 0724-8741
PB Plenum
DT Journal
LA English
RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 4 OF 10 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Characterization of hydroxyethyl starch by polymer analysis for use as a plasma volume expander
AB Hydroxyethyl starch is currently finding increasing use as a basis material for plasma volume expanders. In clin. applications it is desirable to have a precise knowledge of the steric and chemical structure, as these affect the pharmacokinetics and pharmacol. Characterization involved the determination of the mean molar masses and distribution functions of various hydroxyethyl starches, with molar masses ranging from 40,000 g/mol to 200,000 g/mol and degrees of substitution from 0.38 to 0.64, by means of size exclusion chromatog. followed by double detection (MALLS/RI). Hydrodynamic data (Staudinger indexes, Huggins consts. and equivalent diams.) were determined by viscometric means. The chemical structure of the hydroxyethyl starches were clarified by {1H}-13C NMR spectroscopy. Signal assignment for the {1H}-13C NMR spectra made it possible to carry out an absolute determination of the molar, mean and partial degrees of substitution and the degree of branching. The partial degree of substitution of the carbon atom C-2 was found to constitute between 60 and 80% of the total degree of substitution. This value is significantly larger than the partial degrees of substitution at the atoms C-3 and C-6, which were found to contribute up to approx. 10% and 20% resp. of the total degree of substitution. Degrees of branching ranging from 3.1% to 5.5% were detected.
AN 1994:38094 HCAPLUS <<LOGINID::20090217>>
DN 120:38094
OREF 120:6939a,6942a
TI Characterization of hydroxyethyl starch by polymer analysis for use as a plasma volume expander
AU Kulicke, Werner Michael; Roessner, Dierk; Kull, Wiebke
CS Hamburg, Germany
SO Starch/Staerke (1993), 45(12), 445-50
CODEN: STARDD; ISSN: 0038-9056
DT Journal
LA English

L7 ANSWER 5 OF 10 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Fine structure and hyperfine structure of clinically applied

hydroxyethyl starch
AB The Mark-Houwink-relations for different samples of clin. used hydroxyethyl starches were established by multi-detection HPGPC. In combination with the degree of branching, the degrees of substitution DS and the molar substitution MS for the different mol. regions were measured by gas chromatog. methylation anal. Within the mol. regions of nonreducing anhydroglucose units, branching units and linear units characteristic differences were found.. For hydroxyethyl starches which were prepared from enzymically hydrolyzed waxy corn starch by α-Amylase, a significantly higher degree of branching was found than for samples prepared by acid hydrolysis. The clin. relevance of these results is discussed.
AN 1992:537593 HCAPLUS <<LOGINID::20090217>>
DN 117:137593
OREF 117:23735a,23738a
TI Fine structure and hyperfine structure of clinically applied hydroxyethyl starch
AU Sommermeyer, Klaus; Hildebrand, Ulrich; Cech, Franz; Pfitzer, Edith; Henning, Klaus; Weidler, Burghard
CS Fresenius AG, Oberursel, 6370, Germany
SO Starch/Staerke (1992), 44(5), 173-9
CODEN: STARDD; ISSN: 0038-9056
DT Journal
LA German

L7 ANSWER 6 OF 10 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Chromatographic studies on the polydispersity of hydroxyethyl starch
AB A representative sample of clin. used hydroxyethyl starch was separated by semipreparative high-pressure gel permeation chromatog. (HPGPC)into narrow fractions in the range of approx. 3000 to 800,000. The original sample and selected fractions were characterized by gas chromatog. methylation anal. according to their substitution degrees MS and DS, which were differentiated by the substitution positions at C2, C3 and C6 of the anhydroglucoses and their kind of glycosidic bonding α-1, α-1, 4 or α-1,4,6, resp. Furthermore, polydispersity in relations to the degree of branching was determined Mark-Houwink and mol.-weight distribution parameters determined by multi-detection
HPGPC are reported. The presented data demonstrated an extensive homogeneity of the original sample. The clin. relevance is discussed.
AN 1992:451188 HCAPLUS <<LOGINID::20090217>>
DN 117:51188
OREF 117:9097a,9100a
TI Chromatographic studies on the polydispersity of hydroxyethyl starch
AU Sommermeyer, Klaus; Cech, Franz; Hildebrand, Ulrich; Pfitzer, Edith; Baumbach, Cornelia
CS Oberursel, Germany
SO Starch/Staerke (1992), 44(6), 215-18
CODEN: STARDD; ISSN: 0038-9056
DT Journal
LA German

L7 ANSWER 7 OF 10 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Characterization of polymers by size exclusion chromatography using multiple detection. Investigations on the determination of structural differences of hydroxyethyl starches
AB An aqueous size-exclusion chromatog. system was outlined using dual detection by a multi-angle laser light scattering photometer and a concentration detector.

The differences in the radii of gyration at the same mol. weight of two hydroxyethyl starches with different mol. structure were presented. The determination of the Mark-Houwink relation for these polymers led to a qual. similar result.

AN 1992:176417 HCAPLUS <<LOGINID::20090217>>
DN 116:176417
OREF 116:29853a,29856a
TI Characterization of polymers by size exclusion chromatography using multiple detection. Investigations on the determination of structural differences of hydroxyethyl starches
AU Sommermeyer, K.; Cech, F.; Pfitzer, E.; Roessler, K.
CS Pharm. Div., Fresenius A.-G., Oberursel/Taunus, 6370, Germany
SO Chromatographia (1992), 33(3-4), 151-3
CODEN: CHRGB7; ISSN: 0009-5893
DT Journal
LA English

L7 ANSWER 8 OF 10 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Colloid chemistry aspects of perfluoride emulsion compatibility with traditional plasma substitutes
AB Colloidal chemical parameters (aggregational stability, sedimentational stability, translational diffusion, etc.) were studied for a perfluoro emulsion (perfluorodecalin-perfluorotributylamine mixture [77883-75-1] (7:3, volume/volume) suspended in a variety of common blood plasma substitutes (albumin, polyglucin, rheopolyglucin, gelatinol, hemodez, hydroxyethylstarch, amino acid prepns., etc.). It was found that plasma substitutes having a linear mol. structure tend to destabilize perfluoro emulsions, and it is suggested that substitutes having branching, globular mol. structures be developed for optimal compatibility with perfluoro emulsions.
AN 1985:197698 HCAPLUS <<LOGINID::20090217>>
DN 102:197698
OREF 102:30851a,30854a
TI Colloid chemistry aspects of perfluoride emulsion compatibility with traditional plasma substitutes
AU Sidlyarov, D. P.; Aleshina, O. K.; Aprosin, Yu. D.; Shtykova, E. V.
CS Moscow, USSR
SO Biol. Akt. Emul'sii Eksp. Klin. (1983), 11-32. Editor(s): Fedotenkov, A. G.; Afonin, N. I. Publisher: Tsentr. Nauchno-Issled. Inst. Gematol. Perelivaniya Krovi, Moscow, USSR.
CODEN: 52YLAS
DT Conference
LA Russian

L7 ANSWER 9 OF 10 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Viscosity and gelation characteristics of hydroxyethyl starch
AB Potato starch (I) had a higher inherent viscosity (η) than hydroxyethylated I, the η of hydroxyethylated I decreased with increasing SD, and native corn starch (II) had a lower η than I and hydroxyethylated I due to its higher degree of branching. The maximum viscosity and its temperature of I were lower than for hydroxyethylated I, and swelling increased with increasing SD. II gelatinized at higher temps. than hydroxyethylated II, the gelation temperature decreasing with increasing SD. The retrogradation of starch was decreased by etherification, e.g. from 22 to 6% for II.
AN 1982:201554 HCAPLUS <<LOGINID::20090217>>
DN 96:201554
OREF 96:33243a,33246a
TI Viscosity and gelation characteristics of hydroxyethyl

```
     starch
AU   El-Hinnawy, S. I.; El-Saied, H. M.; Fahmy, A.; El-Shirbeeny, A. E.;
     El-Sahy, K. M.
CS   Fac. Agric., Ein Shams Univ., Egypt
SO   Starch/Staerke (1982), 34(4), 112-14
     CODEN: STARDD; ISSN: 0038-9056
DT   Journal
LA   English

L7   ANSWER 10 OF 10  HCAPLUS  COPYRIGHT 2009 ACS on STN
TI   Dilute solution properties of hydroxyethyl starch
AB   The dilute solution properties of hydroxyethyl starch were
     examined using osmometry, light scattering, and viscometry techniques.  The
     weight-average mol. weight, the Z-average root-mean-square radii of gyration,
and the
     second virial coeffs. were calculated using the technique of Hunt, et al. (CA
     51: 3239g) for cellulose trinitrate fractions.  The degree of
     branching, evaluated by comparing the mean square radii, the
     intrinsic viscosities, and the second virial coeffs. with those of the
     linear counterpart, i.e. hydroxyethyl cellulose and ethyl hydroxyethyl
     cellulose, was estimated to be .apprx.0.3.  15 references.
AN   1968:4188  HCAPLUS <<LOGINID::20090217>>
DN   68:4188
OREF 68:839a,842a
TI   Dilute solution properties of hydroxyethyl starch
AU   Cerny, Lawrence C.; Graham, Richard C.; James, Howard L., Jr.
CS   Utica Coll., Utica, NY, USA
SO   Journal of Applied Polymer Science (1967), 11(10), 1941-50
     CODEN: JAPNAB; ISSN: 0021-8995
DT   Journal
LA   English


=> s substitution
L8      288748 SUBSTITUTION

=> s l6 and (PY<2003 or AY<2003 or PRY<2003)
      22983360 PY<2003
       4503971 AY<2003
       3972866 PRY<2003
L9          124 L6 AND (PY<2003 OR AY<2003 OR PRY<2003)

=> s hyperbranched
L10        5032 HYPERBRANCHED

=> s l9 and l10
L11           0 L9 AND L10

=> s side chain
         704086 SIDE
         802809 CHAIN
L12       70815 SIDE CHAIN
                (SIDE(W)CHAIN)

=>

=> s l9 and l12
L13           0 L9 AND L12

=> d his
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     (FILE 'HOME' ENTERED AT 16:29:45 ON 17 FEB 2009)

     FILE 'HCAPLUS' ENTERED AT 16:30:16 ON 17 FEB 2009
L1          3366 S HYDROXYALKYLSTARCH OR HYDROXYETHYLSTARCH OR HYDROXYPROPYLSTAR
L2         60934 S BRANCHING
L3          7364 S DEGREE OF SUBSTITUTION
L4             1 S L1 AND L2 AND L3
L5            10 S L1 AND L2
L6           160 S L1 AND L3
L7            10 S L5 AND (PY<2003 OR AY<2003 OR PRY<2003)
L8        288748 S SUBSTITUTION
L9           124 S L6 AND (PY<2003 OR AY<2003 OR PRY<2003)
L10         5032 S HYPERBRANCHED
L11            0 S L9 AND L10
L12        70815 S SIDE CHAIN
L13            0 S L9 AND L12

=> log hold
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                    47.10      47.32

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)          SINCE FILE      TOTAL
                                                       ENTRY    SESSION
CA SUBSCRIBER PRICE                                    -8.20      -8.20

 SESSION WILL BE HELD FOR 120 MINUTES
STN INTERNATIONAL SESSION SUSPENDED AT 16:33:58 ON 17 FEB 2009

Connecting via Winsock to STN



Welcome to STN International!  Enter x:x

LOGINID:SSPTAEXO1623

PASSWORD:
 * * * * * * RECONNECTED TO STN INTERNATIONAL * * * * * *
SESSION RESUMED IN FILE 'HCAPLUS' AT 16:49:40 ON 17 FEB 2009
FILE 'HCAPLUS' ENTERED AT 16:49:40 ON 17 FEB 2009
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COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                    47.10      47.32

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)          SINCE FILE      TOTAL
                                                       ENTRY    SESSION
CA SUBSCRIBER PRICE                                    -8.20      -8.20

=> s plasma or blood or (peritoneal dialysis)
       993893 PLASMA
      1433140 BLOOD
        35413 PERITONEAL
        62180 DIALYSIS
         3997 PERITONEAL DIALYSIS
              (PERITONEAL(W)DIALYSIS)
L14    2091372 PLASMA OR BLOOD OR (PERITONEAL DIALYSIS)
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=> s l9 and l14
L15         42 L9 AND L14

=> s glycogen
L16      56860 GLYCOGEN

=> s l15 and l16
L17          0 L15 AND L16

=> d l15 1-42 ti abs bib

L15  ANSWER 1 OF 42  HCAPLUS  COPYRIGHT 2009 ACS on STN
TI   Effects of a new modified, balanced hydroxyethyl starch
     preparation (Hextend) on measures of coagulation
AB   Background.  Hydroxyethyl starch (HES) may affect
     blood coagulation.  We studied the effects of a modified,
     balanced, high-mol. weight [mean mol. weight (MW) 550 kDa], high-substituted [
     degree of substitution (DS) 0.7] HES preparation (Hextend) on
     coagulation in patients undergoing major abdominal surgery.  Methods.
     Patients were allocated randomly to receive Hextend, lactated Ringer's
     solution (RL) or 6% HES with a low MW (130 kDa) and a low DS (0.4).  The
     infusion was started after induction of anesthesia and continued until the
     second postoperative day to maintain central venous pressure between 8 and
     12 mm Hg.  Activated thrombelastog. (TEG) was used to assess coagulation.
     Different activators were used (extrinsic and intrinsic activation of TEG)
     and aprotinin was added to assess hyperfibrinolytic activity (ApTEG).  We
     measured onset of coagulation [coagulation time (CT = reaction time, r)],
     the kinetics of clot formation [clot formation time (CFT = coagulation
     time, k)] and maximum clot firmness (MCF = maximal amplitude, MA).
     Measurements were performed after induction of anesthesia, at the end of
     surgery, 5 h after surgery and on the mornings of the first and second
     days after surgery.  Results.  Significantly more HES 130/0.4 (2590 mL)
     than Hextend (1970 mL) was given.  Blood loss was greatest in
     the Hextend group and did not differ between RL- and HES 130/0.4-treated
     patients.  Baseline TEG data were similar and within the normal range.  CT
     and CFT were greater in the Hextend group immediately after surgery, 5 h
     after surgery and on the first day than in the two other groups.  ApTEG
     MCF also changed significantly in the Hextend patients, indicating more
     pronounced fibrinolysis.  Volume replacement using RL caused moderate
     hypercoagulability, shown by a decrease in CT.  Conclusion.  A modified,
     balanced high-mol. weight HES with a high degree of
     substitution (Hextend) adversely affected measures of coagulation
     in patients undergoing major abdominal surgery, whereas a preparation with a
     low MW and low DS affected these measures of hemostasis less.  Large amts.
     of RL decreased the coagulation time.
AN   2002:917805  HCAPLUS <<LOGINID::20090217>>
DN   139:95095
TI   Effects of a new modified, balanced hydroxyethyl starch
     preparation (Hextend) on measures of coagulation
AU   Boldt, J.; Haisch, G.; Suttner, S.; Kumle, B.; Schellhaass, A.
CS   Department of Anesthesiology and Intensive Care Medicine, Klinikum der
     Stadt Ludwigshafen, Ludwigshafen, D-67063, Germany
SO   British Journal of Anaesthesia (2002), 89(5), 722-728
     CODEN: BJANAD; ISSN: 0007-0912
PB   Oxford University Press
DT   Journal
LA   English
RE.CNT  32    THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD
              ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15  ANSWER 2 OF 42  HCAPLUS  COPYRIGHT 2009 ACS on STN
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TI Hydroxyethylstarch as a risk factor for acute renal failure: is a change of clinical practice indicated?
AB A review. Hypovolemia is extremely common among surgical and intensive care patients. The best strategy for volume replacement therapy has been the focus of debate for several years. The lack of acceptance of hydroxyethylstarch (HES) for volume replacement therapy is most likely due to reports of abnormal coagulation and to recently published studies indicating neg. effects of HES on renal function. All HES solns. are not created equal - they widely differ with regard to their physicochem. characteristics (concentration, mean mol. weight (Mw), degree of substitution [DS], C2/C6-substitution ratio). These differences have important consequences for adverse effects such as alterations in the coagulation process and on kidney function. Conflicting results about the effects of different HES solns. on renal function may also be due to varying clin. protocols, selection of patients, and different criteria for volume replacement. Theor. and documented hazards are associated with each kind of volume replacement therapy. There appears to be no reason to banish modern HES prepns. with a low or medium Mw (e.g. 70, 130 or 200kD) and a low DS (0.4 or 0.5) in patients without pre-existing kidney dysfunction. In patients with known renal dysfunction (e.g. plasma creatinine level >3 mg/dL), all HES prepns. should be used cautiously and other volume replacement regimens (e.g. gelatins) should be considered since no convincing data are yet available for the latest generation of HES (Mw 130; DS 0.4).
AN 2002:856392 HCAPLUS <<LOGINID::20090217>>
DN 137:345468
TI Hydroxyethylstarch as a risk factor for acute renal failure: is a change of clinical practice indicated?
AU Boldt, Joachim
CS Department of Anaesthesiology and Intensive Care Medicine, Klinikum der Stadt Ludwigshafen, Ludwigshafen, Germany
SO Drug Safety (2002), 25(12), 837-846
CODEN: DRSAEA; ISSN: 0114-5916
PB Adis International Ltd.
DT Journal; General Review
LA English
RE.CNT 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 3 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Evaluation of a new hydroxyethyl starch solution (HES 130/0.4) in patients undergoing preoperative autologous blood donation
AB The study objectives were to compare the tolerance and efficacy of the new hydroxyethyl starch (HES) 130/0.4 with a current HES solution (HES 200/0.5) in patients undergoing pre-operative autologous blood donation as a model of surgical blood loss. HES 130/0.4 is expected to be a plasma substitute as efficacious as current HES solns. while offering such advantages as more complete renal elimination and reduced tissue storage. The study was carried out as a controlled, randomized, double-blind, phase II clin. trial in a 1500-bed university hospital and included 60 ASA phys. status II and III patients scheduled for elective cardiac and non-cardiac surgery, and meeting selection criteria for autologous blood donors. Collection of 500 mL of blood with simultaneous i.v. infusion of 500 mL of either HES 130/0.4 or HES 200/0.5 (mean mol. weight 130 kD and 200 kD, degree of substitution 0.4 and 0.5, resp.) was performed. Non-invasive measurements of heart rate and arterial blood pressure were obtained every 5 min until 1 h after blood donation and infusion of the study drugs; laboratory studies (complete blood counts, electrolytes, markers of renal and liver

function) were performed; follow-up assessment of adverse events was undertaken by questionnaire 24 h after blood donation and infusion of the study drugs. Both hemodynamics and laboratory test results did not differ significantly between the groups at any time. Hemodynamics remained stable in each group, and no adverse event was observed in any patient until one hour after blood donation and infusion of the study drugs. Adverse events elicited by post-phlebotomy questionnaire were mild and probably unrelated to HES infusion. Thus, i.v. infusion of 500 mL of the new HES 130/0.4 was tolerated well and maintained cardiovascular stability in patients undergoing pre-operative autologous blood donation. HES 130/0.4 proved equivalent to HES 200/0.5 in every measured respect. Its pharmacokinetic profile may render HES 130/0.4 an attractive alternative to current HES solns.

AN 2001:810944 HCAPLUS <<LOGINID::20090217>>

DN 137:88092

TI Evaluation of a new hydroxyethyl starch solution (HES 130/0.4) in patients undergoing preoperative autologous blood donation

AU Kasper, Stefan-Mario; Stromich, Andrea; Kampe, Sandra; Radbruch, Lukas

CS Department of Anesthesiology, University of Cologne, Cologne, Germany

SO Journal of Clinical Anesthesia (2001), 13(7), 486-490
CODEN: JCLBE7; ISSN: 0952-8180

PB Elsevier Science Inc.

DT Journal

LA English

RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 4 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN

TI The effects of hydroxyethyl starches of varying molecular weights on platelet function

AB We evaluated the effect of various hydroxyethyl starch (HES) solns. on platelet function. Blood was obtained before and after the IV infusion (10 mL/kg) of saline (n = 10), HES 70/0.5-0.55 (mol. weight in kD/degree of substitution; n = 10), HES 130/0.38-0.45 (n = 10), HES 200/0.6-0.66 (n = 10), or HES 450/0.7-0.8 (n = 10) in otherwise healthy patients scheduled for elective surgery. Collagen and epinephrine were used as agonists for assessment of platelet function analyzer closure times. Flow cytometry was used to assess agonist-induced expression of activated glycoprotein IIb/IIIa complex and P-selectin. Infusion of HES 450/0.7-0.8, HES 200/0.6-0.66, and HES 70/0.5-0.55 prolonged closure times and reduced glycoprotein IIb/IIIa expression, whereas saline and HES 130/0.38-0.45 had no significant effect on platelet variables. P selectin expression was not affected by any solution tested. In vitro expts. demonstrated a less inhibiting effect of HES 130/0.38-0.45 on closure times when compared with other HES solns. This study shows that HES 450/0.7-0.8, HES 200/0.6-0.66, and HES 70/0.5-0.55 inhibit platelet function by reducing the availability of the functional receptor for fibrinogen on the platelet surface. Our data indicate that fluid resuscitation with HES 130/0.38-0.45 may reduce the risk of bleeding associated with synthetic colloids of higher mol. weight and degree of substitution.

AN 2001:448254 HCAPLUS <<LOGINID::20090217>>

DN 136:193930

TI The effects of hydroxyethyl starches of varying molecular weights on platelet function

AU Franz, Alexander; Braunlich, Peter; Gamsjager, Thomas; Felfernig, Michael; Gustorff, Burkhard; Kozek-Langenecker, Sibylle A.

CS Department of Anesthesiology and Intensive Care B, School of Medicine, University of Vienna, Vienna, 1090, Austria

SO Anesthesia & Analgesia (Baltimore, MD, United States) (2001),

92(6), 1402-1407
CODEN: AACRAT; ISSN: 0003-2999
PB Lippincott Williams & Wilkins
DT Journal
LA English
RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 5 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI The influence of intravascular volume therapy with a new hydroxyethyl starch preparation (6% HES 130/0.4) on coagulation in patients undergoing major abdominal surgery
AB A new hydroxyethyl starch (HES) preparation with a mean mol. weight of 130,000 Da and a degree of substitution of 0.4 shows favorable pharmacokinetic properties. We conducted a study of the influence of the new HES specification on coagulation and compared it with another colloidal intravascular volume replacement regimen using gelatin. According to a prospective, random sequence, 42 patients undergoing major abdominal surgery received either HES 130/0.4 (n = 21) or gelatin (n = 21) until the first postoperative day (POD) to keep central venous pressure between 10 and 14 mm Hg. From arterial blood samples, standard coagulation variables were measured, and modified thromboelastogram (TEG) measurements using different activators were performed. A total of 2830±350 mL of gelatin and 2430±310 mL of HES 130/0.4 were administered until the morning of the first POD. The use of allogeneic blood/blood products and standard coagulation variables did not differ significantly between the two groups. After induction of anesthesia, all TEG data for both groups were within normal range. Coagulation time and maximum clot firmness did not change significantly in any TEG measurements during the study period. The kinetics of clot formation (clot formation time) significantly increased immediately after surgery, but without showing significant group differences. On the morning of the first POD, the clot formation time returned to almost normal levels, except for aprotinin-activated TEG. We conclude that administration of moderate doses of the new HES 130/0.4 preparation in patients undergoing major abdominal surgery results in similar coagulation alterations as those after using an established gelatin-based volume-replacement regimen.
AN 2001:219315 HCAPLUS <<LOGINID::20090217>>
DN 135:174970
TI The influence of intravascular volume therapy with a new hydroxyethyl starch preparation (6% HES 130/0.4) on coagulation in patients undergoing major abdominal surgery
AU Haisch, Gerd; Boldt, Joachim; Krebs, Claudia; Kumle, Bernhard; Suttner, Stefan; Schulz, Andreas
CS Department of Anesthesiology and Intensive Care Medicine, Klinikum der Stadt Ludwigshafen, Ludwigshafen, D-67063, Germany
SO Anesthesia & Analgesia (Baltimore, MD, United States) (2001), 92(3), 565-571
CODEN: AACRAT; ISSN: 0003-2999
PB Lippincott Williams & Wilkins
DT Journal
LA English
RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 6 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Influence of colloid fluids on polymorphonuclear granulocyte function in vivo
AB Granulocytes have a role in the immediate immune response. In a previous investigation the authors could demonstrate in vitro a moderate increase

of the complement receptors CR1 (CD35) and CR3 (CD11b/CD18) on the surface of polymorphonuclear neutrophils (PMN) after incubation of whole blood with colloids. To elucidate the clin. significance, the authors investigated if these changes were also present in vivo. The study was performed prior to anesthesia for orthopedic surgery. A total of 60 ASA-I patients was evaluated. Patients received in a randomized manner 7 mL/kg of the following solns.: human albumin 5% (HA), gelatine 4% (GEL), hydroxyethylstarch solution 6% with MW 200 000 Da, degree of substitution 0.5 (HES), or Ringer's solution Prior to the infusion, at the end (30 min) and again 30 min later, blood samples were taken. Blood was incubated with fluorescein-conjugated monoclonal antibodies (CD11b, CD16, CD35, CD62L) and analyzed with flow cytometry. HA, GEL, HES, and Ringer's solution failed to induce significant differences in the expression of complement receptors CR1 (CD35) and CR3 (CD11b/CD18), Fcγ receptor IIIb (CD16), and of L-selectin (CD62L) receptor on the surface of PMN. Application of colloids like HA, GEL, or HES in moderate amts. shows no short-term effect on adhesion or activation mols. on granulocytes. However, in high doses, infused in situations such as multiple trauma and sepsis, the consequences on the function of PMN may be speculative and require further investigations.

AN 2001:212429 HCAPLUS <<LOGINID::20090217>>

DN 135:200293

TI Influence of colloid fluids on polymorphonuclear granulocyte function in vivo

AU Engel, J. M.; Welters, I.; Rupp, M.; Langefeld, T.; Ruwoldt, R.; Menges, T.; Hempelmann, G.

CS Department of Anaesthesiology and Intensive Care Medicine, Justus-Liebig-University, Giessen, Germany

SO Acta Anaesthesiologica Scandinavica (2001), 45(3), 385-389
CODEN: AANEAB; ISSN: 0001-5172

PB Munksgaard International Publishers Ltd.

DT Journal

LA English

RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 7 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN

TI Coagulation effects of a recently developed hydroxyethyl starch (HES 130/0.4) compared to hydroxyethyl starches with higher molecular weight

AB Hydroxyethyl starches (HES) are known to interfere with blood coagulation according to mol. weight, the degree of substitution and the C2/C6 ratio. A recently developed low mol. hydroxyethyl starch (HES 130/0.4) was designed to reduce the blood compromising potency. In this study, effects of a 30% in vitro hemodilution with the new HES preparation (HES 130/0.4) in comparison to HES 200/0.5, HES 450/0.7 and NaCl solution were investigated using intrinsic and extrinsic activated thrombelastog. (TEG) and plasmatic coagulation tests. Whereas plasmatic tests revealed no prolongation of coagulation by HES in comparison to sodium chloride, the TEG variables clotting time, clot formation time and maximal clot firmness showed a significant ($P<0.05$) inhibition by all the HES prepns. The inhibition was most pronounced in HES 450 ($P<0.05$ vs HES 130) while HES 130 did not show a statistically significant difference in extrinsic activated maximal clot firmness when compared to NaCl. These in vitro results demonstrate that hydroxythyl starches especially compromise clot polymerization The new preparation HES 130/0.4 seems to inhibit platelet function to a lesser extent than hydroxyethyl starch prepns. with a higher mol. weight and degree of substitution.

AN 2000:730408 HCAPLUS <<LOGINID::20090217>>
DN 134:261066
TI Coagulation effects of a recently developed hydroxyethyl starch (HES 130/0.4) compared to hydroxyethyl starches with higher molecular weight
AU Entholzner, E. K.; Mielke, L. L.; Calatzis, A. N.; Feyh, J.; Hipp, R.; Hargasser, S. R.
CS Arbeitsgruppe Hamostaseologie, Technische Universitat Munchen, Munchen, Germany
SO Acta Anaesthesiologica Scandinavica (2000), 44(9), 1116-1121
CODEN: AANEAB; ISSN: 0001-5172
PB Munksgaard International Publishers Ltd.
DT Journal
LA English
RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 8 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Hydroxyethylstarch conjugates their production, and contrast agents containing them
AB Injected conjugates of hydroxyethylstarch with metal complexes remain confined to the intravascular space and are therefore useful as blood pool contrast agents in medical diagnosis. These agents accumulate in regions with high vascular permeability such as tumors, and can be used to demonstrate the degree of tissue perfusion, e.g. in diagnosis of myocardial infarction. They show high relaxivity in MRI, and have a carrying capacity for paramagnetic ions of .apprx.20%. They show good excretion behavior, good stability, and good biocompatibility (no data). Thus, hydroxyethylstarch (mol. weight 40 kDa) reacted with ClCH2CO2H in alkaline solution to form Na O-(carboxymethyl) hydroxyethylstarch (degree of substitution 1.1), which was amidated with the Gd complex of 10-(2-hydroxy-3-aminopropyl)-4,7,10-tris(carboxymethyl)-1,4,7,10-tetraazacyclododecane.
AN 1999:549187 HCAPLUS <<LOGINID::20090217>>
DN 131:185191
TI Hydroxyethylstarch conjugates their production, and contrast agents containing them
IN Mareski, Peter; Platzek, Johannes; Raduechel, Bernd; Niedballa, Ulrich; Weinmann, Hanns-Joachim
PA Schering Aktiengesellschaft, Germany
SO PCT Int. Appl., 34 pp.
CODEN: PIXXD2
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9942139	A2	19990826	WO 1999-EP853	19990209 <--
	WO 9942139	A3	19990930		
	W: AL, AM, AU, AZ, BA, BB, BG, BR, BY, CA, CN, CU, CZ, EE, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, RO, RU, SD, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	DE 19808079	A1	19990826	DE 1998-19808079	19980220 <--
	AU 9928328	A	19990906	AU 1999-28328	19990209 <--
PRAI	DE 1998-19808079	A	19980220 <--		
	WO 1999-EP853	W	19990209 <--		

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 9 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Effect of a new hydroxyethyl starch (HES) specification [6% HES (130/0.4)] on blood and plasma volumes after bleeding in 12 healthy male volunteers
AB Using an isovolemic model, the effect on the blood and plasma vols. of a newly developed medium-mol. weight (130 Kd) hydroxyethyl starch (HES) solution (degree of substitution 0.4) was investigated in 12 healthy male volunteers with the aid of 51Cr-radiolabeled erythrocytes. Blood samples were drawn before and after 500mL bleeding as well as directly prior to the start of a 500mL HES infusion, and repeatedly up to 24 h after treatment, for the measurement of hematocrit and gamma-counting, and the calcn. of blood and plasma vols. The blood and plasma vols. increased by a maximum of 0.385L (7%) and 0.620L (21%), resp., at 30 min after the start of infusion, and returned to the baseline value at 24 h after infusion. The plasma volume exceeded the volume prior to the start of bleeding by more than 5% for 19.15 h. A clin. relevant expansion of the plasma volume persisted for at least 6 h after the infusion and was comparable to the infused volume The red blood cell volume remained stable after bleeding [mean: 2.01L; SD: 0.03L (range 1.95L to 2.05L)]. Local tolerability at the infusion site and systemic tolerability were good. Blood pressure, heart rate and ECG did not show clin. relevant deviations from normal. It is concluded that a blood withdrawal of 500mL can be replaced isovolemically by 500mL of the new 6% HES (130/0.4) solution
AN 1999:203144 HCAPLUS <<LOGINID::20090217>>
DN 131:39439
TI Effect of a new hydroxyethyl starch (HES) specification [6% HES (130/0.4)] on blood and plasma volumes after bleeding in 12 healthy male volunteers
AU Waitzinger, Josef; Bepperling, Frank; Pabst, Gunther; Opitz, Jens; Fackelmayer, Andrea; Boldt, Joachim
CS AAI Deutschland GmbH and Co KG, Neu-Ulm, Germany
SO Clinical Drug Investigation (1999), 17(2), 119-125
CODEN: CDINFR; ISSN: 1173-2563
PB Adis International Ltd.
DT Journal
LA English
RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 10 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Characterization of acetyl starch by means of NMR spectroscopy and SEC/MALLS in comparison with hydroxyethyl starch
AB The properties of starch derivs. which may be used as plasma substitutes, are dependent upon the mol. structure. Seven acetyl starch (AS) samples were determined and compared with results from hydroxyethyl starch (HES) samples. The molar masses and their distributions were determined with the combination of size exclusion chromatog. and light scattering. Slightly asym. distributions were determined with a polydispersity Mw/Mn .simeq. 2.4 and weight-average molar masses of Mw = 250,000-300,000 g/mol for 6 AS samples and Mw/Mn .simeq. 3.6 and a weight-average molar mass of 766,000 g/mol for one AS sample. The average degrees of substitution (DS) and the substitution pattern were determined by high resolution MNR spectroscopy. The AS samples investigated had a DS of 0.42-0.81, comparable to HES, but the regioselective substitution pattern revealed differences. While for HES the position C-2 is preferred and the position

C-3 has nearly no substituent, for AS both positions, C-2 and C-3, are substituted likewise. Degradability by α-amylase was tested in the laboratory for As as well as for HES having nearly the same degree of substitution and molar mass, but C-2/C-6 = 2 for AS and C-2/C-6 = 1.4 for HES. An exponential decrease in the molar mass was observed over time, down to a limiting molar mass Mw .simeq. 50,000 g/mol for AS and Mw .simeq. 30,000 g/mol for HES, the degradation of AS occurred more slowly.

AN 1998:771673 HCAPLUS <<LOGINID::20090217>>
DN 130:29151
TI Characterization of acetyl starch by means of NMR spectroscopy and SEC/MALLS in comparison with hydroxyethyl starch
AU Heins, Dorothee; Kulicke, Werner-Michael; Kaeuper, Peter; Thielking, Heiko
CS Institut Technische Makromolekulare Chemie, Universitaet Hamburg, Hamburg, D-20146, Germany
SO Starch/Staerke (1998), 50(10), 431-437
CODEN: STARDD; ISSN: 0038-9056
PB Wiley-VCH Verlag GmbH
DT Journal
LA English
RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 11 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Compromised blood coagulation: an in vitro comparison of hydroxyethyl starch 130/0.4 and hydroxyethyl starch 200/0.5 using thrombelastography
AB We compared the effects of progressive in vitro hemodilution (30% and 60%) on blood coagulation in 80 patients receiving one of two different 6% hydroxyethyl starch (HES) solns. using thrombelastog. (TEG). The newly developed solution has a mean mol. weight of 130 kD and a degree of substitution, defined as the average number of hydroxyethyl groups per glucose moiety, of 0.4 (HES 130/0.4); the conventional, solution has a mean mol. weight of 200 kD and a degree of substitution of 0.5 (HES 200/0.5). Both HES solns. significantly compromised blood coagulation, as seen by an increase in reaction time and coagulation time and a decrease in angle α, maximal amplitude, and coagulation index (all P < 0.05). There was no difference between HES 130/0.4 and HES 200/0.5 diluted blood (P > 0.05 for all TEG variables). When analyzing the intrinsic HES effect by taking hemodilution with 0.9% saline into account, progressive hemodilution with both HES solns. resulted in an increasing clot lysis (P < 0.05 after 60 min). Again, there was no difference between HES 130/0.4 and HES 200/0.5 diluted blood. We conclude that HES 130/0.4 and HES 200/0.5 compromise blood coagulation to the same degree. Progressive in vitro hemodilution using hydroxyethyl starch (HES) compromises blood coagulation. We observed similar effects of a new HES solution with a mean mol. weight of 130 kD and a degree of substitution of 0.4 (HES 130/0.4), compared with the conventional HES 200/0.5.

AN 1998:733286 HCAPLUS <<LOGINID::20090217>>
DN 130:133882
TI Compromised blood coagulation: an in vitro comparison of hydroxyethyl starch 130/0.4 and hydroxyethyl starch 200/0.5 using thrombelastography
AU Jamnicki, Marina; Zollinger, Andreas; Seifert, Burkhardt; Popovic, Dragoljub; Pasch, Thomas; Spahn, Donat R.
CS Institute of Anesthesiology, University Hospital, Zurich, CH-8091, Switz.
SO Anesthesia & Analgesia (Baltimore) (1998), 87(5), 989-993
CODEN: AACRAT; ISSN: 0003-2999
PB Lippincott Williams & Wilkins
DT Journal

LA English
RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 12 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Coagulation disorders caused by hydroxyethyl starch
AB A review with 86 refs. is given on coagulation disorders caused by hydroxyethyl starch (HES). Initially, HES was only characterized by its in vitro mol. weight (MW). This is not sufficient because HES is degraded in vivo. One relevant parameter that predicts the rate of enzymic breakdown is the degree of substitution , a measure of the average number of hydroxyethyl groups per Glc unit. The higher this degree of substitution, the slower the break-down. In addition, because the Glc units can be substituted at C 2, 3, and 6, different substitution patterns are possible. They are classified by their C2/C6 hydroxyethylation ratio. A higher C2/C6 ratio results in less metabolism of the starch in vivo and results in a larger in vivo MW. This in turn affects therapy, because the larger the in vivo MW, the longer is the duration of the volume effect of HES. Of particular importance is the fact that HES with a high in vivo MW affects factor VIII/von Willebrand factor which can lead to an acquired von Willebrand syndrome. During a 10-day volume therapy with a medium-MW HES 200, a form that is difficult to metabolize, we observed an 80% drop in factor VIII/von Willebrand factor. Therapy with a medium-MW HES 200, a form that is easily degraded, and therapy with a low-MW HES 70 did not result in a relevant decline of factor VIII/von Willebrand factor. This explains why hemorrhagic complications were observed repeatedly in the United States after therapy with HES infusions, some of them lethal. In the United States high-MW HES 480 which is difficult to degrade is most frequently used and results in a larger in vivo MW and subsequent decrease in factor VIII/von Willebrand factor levels. In Europe, medium-MW HES 200 that is easily degraded and low-MW HES 70 are preferred. In the future, HES should be characterized by the in vivo, not the in vitro MW.
AN 1997:603004 HCAPLUS <<LOGINID::20090217>>
DN 127:242743
OREF 127:47199a,47202a
TI Coagulation disorders caused by hydroxyethyl starch
AU Treib, Johannes; Haass, Anton; Pindur, Gerhard
CS Department Neurology, University Saarland, Homburg, D-66421, Germany
SO Thrombosis and Haemostasis (1997), 78(3), 974-983
CODEN: THHADQ; ISSN: 0340-6245
PB Schattauer
DT Journal; General Review
LA English

L15 ANSWER 13 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Increased hemorrhagic risk after repeated infusion of highly substituted medium molecular weight hydroxyethyl starch
AB Infusion of large vols. of high mol. weight hydroxyethyl starch (HES) has been known to lead to coagulation disorders. Medium mol. weight starch is considered a safe alternative, even after repeated administration. In 10 patients with cerebrovascular diseases, a 10-day hemodilution was carried out using 10% HES 200/ 0.62. Initially, a loading dose of 500 mL was administered once over 4560 min, followed by 500 mL maintenance dose per day for 10 days. Its high intravascular mol. weight (120,000 D) showed that cleavage of the starch is slowed due to the higher degree of substitution. The continuous increase of HES-serum concentration to 27.7 mg/mL gave evidence of a cumulation of poorly degradable mols. Although this caused a prolonged volume effect, plasma viscosity and erythrocyte aggregation were influenced in an unfavorable way. The neg. effects were most evident in their influence on

the coagulation system. Under therapy, a significant 42.8% increase in activated partial thromboplastin time occurred. Factor VIII:C, von Willebrand ristocetin cofactor and von Willebrand factor antigen dropped during the therapy below the hemostasiol. limit of 30%, and in some patients below 10%. A high degree of substitution, particularly after repeated infusion, leads to a cumulation of large mols. that are difficult to break down and which unfavorably affect rheol. and hemostasiol. parameters.

AN 1997:93454 HCAPLUS <<LOGINID::20090217>>
DN 126:246632
OREF 126:47554h,47555a
TI Increased hemorrhagic risk after repeated infusion of highly substituted medium molecular weight hydroxyethyl starch
AU Treib, Johannes; Haass, Anton; Pindur, Gerhard; Grauer, Markus T.; Jung, Friedel; Wenzel, Ernst; Schimrigk, Klaus
CS Department Neurology, University Saarland, Homburg, D-66421, Germany
SO Arzneimittel-Forschung (1997), 47(1), 18-22
CODEN: ARZNAD; ISSN: 0004-4172
PB Cantor
DT Journal
LA English

L15 ANSWER 14 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI All medium starches are not the same: influence of the degree of hydroxyethyl substitution of hydroxyethyl starch on plasma volume, hemorheologic conditions, and coagulation
AB After the administration of high vols. of high-mol.-weight starch (hetastarch), bleeding complications have repeatedly been observed Later studies showed that the application of medium-mol.-weight starch led to far fewer disturbances of the blood coagulation system. However, the relationships among the degree of hydroxyethyl substitution, the rate of degradation, and the average in vivo mol. weight have not been investigated. A 10-day hemodilution treatment (n = 20) was carried out using two medium-mol.-weight hydroxyethyl starches (HES) with a degree of hydroxyethyl substitution of 0.5 and 0.62, resp. (10% HES 200 was used for a substitution of 0.5 and 6% HES 200 for a substitution of 0.62). After a loading dose of 500 mL was administered, 1000 mL of HES was infused daily for 4 days, and then 500 mL was infused daily for 6 days. The more highly substituted starch was broken down more slowly and eliminated renally. This resulted in a higher intravascular mol. weight than for the less highly substituted HES (120 vs. 84 kDa) and a greater increase in serum concentration (20.3 vs. 9.0 mg/mL). Initially, the more highly substituted 6-percent HES had a lesser effect on plasma volume ($p<0.01$). Because of HES accumulation, there was no longer a significant difference between the starches by the end of treatment, even though a higher dose of the 10-percent low-substitution starch was infused. Six-percent HES caused an increase in plasma viscosity (+9%, $p<0.01$) that was due to an accumulation of macromols. Ten-percent HES 200/0.5 had no effect on the coagulation system beyond the dilution effect. Six-percent HES, on the other hand, led to an acquired von Willebrand syndrome during the course of the 10-day therapy. Factor VIII function was reduced by 72.2 percent, von Willebrand ristocetin cofactor by 61.3 percent, and von Willebrand factor antigen by 64 percent ($p<0.01$). Thus, it is the intravascular and not the initial (in vitro) mol. weight that dets. the properties of HES. Especially after repeated administration, a high degree of hydroxyethyl substitution leads to an accumulation of macromols. that affect hemorheol. measures and the coagulation system just as adversely as high-mol.-weight starch does. Depending on the degree of substitution, medium-mol.-weight starches can have widely differing properties.

AN 1996:443362 HCAPLUS <<LOGINID::20090217>>
DN 125:158096
OREF 125:29307a,29310a
TI All medium starches are not the same: influence of the degree of hydroxyethyl substitution of hydroxyethyl starch on plasma volume, hemorheologic conditions, and coagulation
AU Treib, J.; Haass, A.; Pindur, G.; Grauer, M.T.; Wenzel, E.; Schimrigk, K.
CS Department of Neurology, University of the Saarland, Homburg, Germany
SO Transfusion (Bethesda, Maryland) (1996), 36(5), 450-455
CODEN: TRANAT; ISSN: 0041-1132
PB American Association of Blood Banks
DT Journal
LA English

L15 ANSWER 15 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Influence of intravascular molecular weight of hydroxyethyl starch on platelets
AB Complications concerning the blood coagulation have been observed repeatedly after administration of highly substituted, high mol. weight hydroxyethyl starch (HES), but it has not been examined as to how intravascular mol. weight and degree of substitution of HES influence platelet number and volume after repeated administration. Thirty patients with cerebrovascular diseases were treated for 10 days with hemo-dilution 500 To 1500 mL of HES 200/0.62 (n=10), HES 200/0.5 (n=10) or HES 40/0.5 (n=10) were infused daily. During the first days, the number of platelets was not lowered beyond the dilution effect, but at the end of the therapy the number of platelets had increased in all 3 groups beyond the initial value. Platelet volume was lowered significantly in the 3 groups. HES 200/0.62 caused the largest drop in platelet volume (-10%, $p<0.01$). A possible explanation could be that HES macromols. are attached to platelets or are phagocytized by them. The larger platelets are then broken down and, to compensate the loss, more thrombocytes are released. A correlation between the mol. weight of HES and the breakdown rate of the platelets can be suspected, because HES 200/0.62 had the highest intravascular mean mol. weight (121 kD) and the largest effect on platelet volume
AN 1996:244160 HCAPLUS <<LOGINID::20090217>>
DN 124:332408
OREF 124:61377a,61380a
TI Influence of intravascular molecular weight of hydroxyethyl starch on platelets
AU Treib, J.; Haass, A.; Pindur, G.; Treib, W.; Wenzel, E.; Schimrigk, K.
CS Dept. Neurology, University the Saarland, Homburg/Saar, D-66421, Germany
SO European Journal of Haematology (1996), 56(3), 168-72
CODEN: EJHAEC; ISSN: 0902-4441
PB Munksgaard
DT Journal
LA English

L15 ANSWER 16 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI HES 200/0.5 is not HES 200/0.5: influence of the C2/C6 hydroxyethylation ratio of hydroxyethyl starch (HES) on hemorheology, coagulation and elimination kinetics
AB The plasma clearance of hydroxyethyl starch (HES) depends on the initial mol. weight and the degree of substitution. So far, little attention has been paid to the clin. relevance of the C2/C6 substitution ratio of hydroxyethyl starch. 10 Patients with cerebrovascular circulatory disturbance received hemodilution therapy for 10 days, consisting of 10% HES 200/0.5 (mean mol. weight 200 kD, degree of substitution 0.5) with a C2/C6 ratio of 13.4. A second group of 10 patients received a

starch solution with identical initial mol. weight and degree of substitution but with a C2/C6 ratio of 5.7. After the administration of a single dose, no significant differences between the two groups were observed After repeated administration, significant differences could be detected in hemorheol., coagulation and elimination ($p<0.01$). The larger C2/C6 ratio led to a higher intravascular mean mol. weight (95 vs. 84 kD), which in turn led to a higher increase in serum concentration during the therapy (14.7 vs. 8.6 mg/mL). Hematocrit was lowered more (-30,5% vs. -23,5%) and plasma viscosity was increased more. There was also a more pronounced increase in partial thromboplastin time (+30% vs. +13%) and a factor of 2 larger decrease of factor VIII/von Willebrand factor-complex ($p<0.01$), which exceeded the dilution effect. The higher C2/C6 ratio of HES 200/0.5/13.4 slows down enzymic degradation After repeated administration of this starch, large mols. accumulate which are inefficiently degraded. The same effect has been observed after therapy with highly-substituted HES. This accumulation of large mols. leads to a beneficial longer lasting volume effect. The disadvantages include an increase in plasma viscosity and coagulation disturbances, which cannot be explained with the resp. dilution effect alone. For these reasons, the C2/C6 ratio is of clin. relevance and should be included in the product labeling in the future.

AN 1996:33825 HCAPLUS <<LOGINID::20090217>>
DN 124:106117
OREF 124:19523a,19526a
TI HES 200/0.5 is not HES 200/0.5: influence of the C2/C6 hydroxyethylation ratio of hydroxyethyl starch (HES) on hemorheology, coagulation and elimination kinetics
AU Treib, Johannes; Haass, Anton; Pndur, Gerhard; Seyfert, Ulrich T.; Treib, Wolfgang; Grauer, Markus T.; Jung, Friedel; Wenzel, Ernst; Schimrigk, Klaus
CS Dep. Neurology, Univ. Saarland, Homburg, Germany
SO Thrombosis and Haemostasis (1995), 74(6), 1452-6
CODEN: THHADQ; ISSN: 0340-6245
PB Schattauer
DT Journal
LA English

L15 ANSWER 17 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Dialysis solution containing hydroxyethylstarch for peritoneal dialysis
AB The title solns. contain hydroxyethylstarch (mol. weight 10,000-150,000; degree of substitution MS = 0.10-0.40 and DS = 0.09-0.35; C2/C6 substitution ratio ≥8) as osmotically active substance, along with electrolytes and standard excipients. These solns. combine excellent ultrafiltration with a long residence time, i.e. they can be used without changing for 12 h during continuous ambulatory peritoneal dialysis. The resorption of the osmotically active substance is diminished (≤60-70% even after 12 h residence time). Thus, a solution containing hydroxyethylstarch (mol. weight 29,000; MS = 0.23; DS = 0.21; C2/C6 = 8.7) 75.0, NaCl 5.435, 50% Na L-lactate solution 8.97, $CaCl_2.2H_2O$ 0.2573, $MgCl_2.6H_2O$ 0.0508 g, and water 945 mL had pH 5.0-6.0, d. 1.032-1.038, osmolarity 2.72 milliosmolar, and titratable acidity 0.3-2.0 mmol NaOH/L.
AN 1994:491874 HCAPLUS <<LOGINID::20090217>>
DN 121:91874
OREF 121:16358h,16359a
TI Dialysis solution containing hydroxyethylstarch for peritoneal dialysis
IN Sommermeyer, Klaus; Passlick-Deetjen, Jutta
PA Fresenius AG, Germany

SO Eur. Pat. Appl., 7 pp.
CODEN: EPXXDW
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	EP 602585	A2	19940622	EP 1993-120095	19931214	<--
	EP 602585	A3	19940907			
	EP 602585	B1	19961016			
	R: CH, DE, ES, FR, GB, IT, LI					
	DE 4242926	A1	19940623	DE 1992-4242926	19921218	<--
	DE 4242926	C2	19941215			
	AU 9352022	A	19940630	AU 1993-52022	19931130	<--
	AU 664927	B2	19951207			
	ES 2093907	T3	19970101	ES 1993-120095	19931214	<--
	JP 07025788	A	19950127	JP 1993-345031	19931220	<--
	JP 2540101	B2	19961002			
	US 6284140	B1	20010904	US 1997-815442	19970311	<--
PRAI	DE 1992-4242926	A	19921218	<--		
	US 1993-167366	B1	19931216	<--		
	US 1995-389683	B1	19950216	<--		

L15 ANSWER 18 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Characterization of hydroxyethyl starch by polymer analysis for use as a plasma volume expander
AB Hydroxyethyl starch is currently finding increasing use as a basis material for plasma volume expanders. In clin. applications it is desirable to have a precise knowledge of the steric and chemical structure, as these affect the pharmacokinetics and pharmacol. Characterization involved the determination of the mean molar masses and distribution functions of various hydroxyethyl starches, with molar masses ranging from 40,000 g/mol to 200,000 g/mol and degrees of substitution from 0.38 to 0.64, by means of size exclusion chromatog. followed by double detection (MALLS/RI). Hydrodynamic data (Staudinger indexes, Huggins consts. and equivalent diams.) were determined by viscometric means. The chemical structure of the hydroxyethyl starches were clarified by {1H}-13C NMR spectroscopy. Signal assignment for the {1H}-13C NMR spectra made it possible to carry out an absolute determination of the molar, mean and partial degrees of substitution and the degree of branching. The partial degree of substitution of the carbon atom C-2 was found to constitute between 60 and 80% of the total degree of substitution . This value is significantly larger than the partial degrees of substitution at the atoms C-3 and C-6, which were found to contribute up to approx. 10% and 20% resp. of the total degree of substitution. Degrees of branching ranging from 3.1% to 5.5% were detected.
AN 1994:38094 HCAPLUS <<LOGINID::20090217>>
DN 120:38094
OREF 120:6939a,6942a
TI Characterization of hydroxyethyl starch by polymer analysis for use as a plasma volume expander
AU Kulicke, Werner Michael; Roessner, Dierk; Kull, Wiebke
CS Hamburg, Germany
SO Starch/Staerke (1993), 45(12), 445-50
CODEN: STARDD; ISSN: 0038-9056
DT Journal
LA English

L15 ANSWER 19 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Dry powder composition of hydroxyethyl starch suitable for reconstitution
AB The title readily-resol. powdered compns., useful for plasma volume expansion, leukophoresis, etc. are obtained from 4-40% hydroxyethyl starch (I) with mol. weight ≤2,000,000, degree of substitution 0.4-0.7, and containing ≤0.5 phr ethylene glycol (I basis), and other soluble components such as dextrose, lactose, mannitol and/or NaCl as wetting enhancers.
AN 1992:636169 HCAPLUS <<LOGINID::20090217>>
DN 117:236169
OREF 117:40827a,40830a
TI Dry powder composition of hydroxyethyl starch suitable for reconstitution
IN Hussain, Munir Alwan; Srinivas, Raghunath; Wu, Lei Shu
PA Du Pont Merck Pharmaceutical Co., USA
SO PCT Int. Appl., 12 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9213915	A1	19920820	WO 1992-US571	19920204 <--
W: AU, CA, CS, JP, PL				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE				
US 5704297	A	19980106	US 1991-652034	19910206 <--
AU 9212284	A	19920907	AU 1992-12284	19920204 <--
PRAI US 1991-652034	A	19910206 <--		
WO 1992-US571	A	19920204 <--		

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 20 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Pharmacokinetic parameters as criteria for clinical use of hydroxyethyl starch preparations
AB The pharmacokinetics of 2 com. hydroxyethyl starch prepns., differing only slightly in their pharmaceutical descriptions, were determined in volunteers. Significant differences were found, related not only to the degree of substitution but also to the position of the hydroxyethyl groups on the anhydroglucose skeleton. The C2/C6 hydroxyethylation ratio seemed to be the most significant for determining whether the starch would be slow- or long-acting when used for plasma replacement/hemodiln. Such data should be included in the pharmaceutical specifications for hydroxyethyl starch, because the differences may determine clin. use and efficacy.
AN 1991:464034 HCAPLUS <<LOGINID::20090217>>
DN 115:64034
OREF 115:10827a,10830a
TI Pharmacokinetic parameters as criteria for clinical use of hydroxyethyl starch preparations
AU Weidler, B.; Von Bormann, B.; Sommermeyer, K.; Lohmann, E.; Peil, J.; Hempelmann, G.
CS Abt. Anaesthesiol. Oper. Intensivmed., Justus-Liebig-Univ., Giessen, W-6300, Germany
SO Arzneimittel-Forschung (1991), 41(5), 494-8
CODEN: ARZNAD; ISSN: 0004-4172
DT Journal
LA German

L15 ANSWER 21 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN

TI Hydroxyethyl starch as plasma expander and its preparation
AB Hydroxyethyl starch (I) which is degraded in a physiol. reasonable time with no residues is prepared by prehydrolysis of amylopectin-rich starch, hydroxyethylation to degree of substitution (DS) 0.15-0.5, and hydrolysis to mol. weight (6-60) + 10$, giving I with ratio of C-2 substitution to C-6 substitution 8-20:1. Starch was washed and partially acetalized with MeOH, solvated with 1% methanolic HCl at 40° until the mol. weight was 900,000, washed with 0.1 N NaOH, hydroxyethylated in 1 N NaOH at 20° and pH ≥12, with HCl, and subjected to ultrafiltration to give I with mol. weight 234,000 and D.S. 0.26. Complete hydrolysis gave glucose 81.2%, 2-, 3-, and 6-hydroxyethyl glucose 12.42, 2.70, and 1.33%, resp., and bis(hydroxyethyl) glucose isomers 1.04%.
AN 1991:124846 HCAPLUS <<LOGINID::20090217>>
DN 114:124846
OREF 114:21257a,21260a
TI Hydroxyethyl starch as plasma expander and its preparation
IN Sommermeyer, Klaus; Cech, Franz; Weidler, Burghard; Henning, Klaus
PA Fresenius A.-G., Germany
SO Eur. Pat. Appl., 6 pp.
CODEN: EPXXDW
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 402724	A1	19901219	EP 1990-110531	19900602 <--
	EP 402724	B1	19960214		
	EP 402724	B2	20010509		
	R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE				
	DE 3919729	A1	19901220	DE 1989-3919729	19890616 <--
	DE 3919729	C2	19920326		
	DE 3919729	C3	19970619		
	AT 134196	T	19960215	AT 1990-110531	19900602 <--
	US 5218108	A	19930608	US 1990-533294	19900605 <--
	JP 03026701	A	19910205	JP 1990-156633	19900614 <--
PRAI	DE 1989-3919729	A	19890616 <--		

L15 ANSWER 22 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI The effect of plasma substitutes on sedimentation rates and viscosity
AB Mol. parameters of hydroxyethyl starch can be effectively utilized in controlling the biophys. properties in mixts. with erythrocytes. A low mol. weight polymer with a moderate degree of substitution decelerated the erythrocyte sedimentation rate and altered the shear-dependent flow properties. There was only a minor amount of interaction between the polymer the the red cell membrane as reflected by hemolytic kinetic expts. The changes in the magnitude of the kinetic breadth parameter, β, may be an indicator of the effect of interaction with the spectrum of different age cells in a red cell population.
AN 1989:639437 HCAPLUS <<LOGINID::20090217>>
DN 111:239437
OREF 111:39651a,39654a
TI The effect of plasma substitutes on sedimentation rates and viscosity
AU Cerny, Lawrence C.; Cerny, Elaine L.
CS Utica Coll., Syracuse Univ., Utica, NY, 13501-1787, USA

SO Materials Research Society Symposium Proceedings (1988), Volume
Date 1987, 110(Biomed. Mater. Devices), 107-12
CODEN: MRSPDH; ISSN: 0272-9172
DT Journal
LA English

L15 ANSWER 23 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Orally-administered intestinal washing solution containing a
polysaccharide
AB Aqueous solns. for intestinal washing comprise electrolytes and a
physiol.-compatible macromol. compound, in such a concentration as to
correspond
with the oncotic pressure of the blood. An intestinal washing
solution comprised Na+ 76, K+ 4, Ca2+ 1, Cl- 72, and lactate 10 mmol, as well
as 6% hydroxyethyl starch (mol. weight 450,000;
degree of substitution 0.7). The solution had pH 7,
osmolarity 163 mosmol/L and oncotic pressure of 27 mbar.
AN 1988:616046 HCAPLUS <<LOGINID::20090217>>
DN 109:216046
OREF 109:35661a,35664a
TI Orally-administered intestinal washing solution containing a
polysaccharide
IN Schimetta, Wolfgang
PA Laevosan G.m.b.H. und Co. K.-G., Austria
SO Ger. Offen., 4 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3705874	A1	19880901	DE 1987-3705874	19870224 <--
PRAI DE 1987-3705874		19870224 <--		

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 24 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Hydroxyethyl starch as a plasma expander:
physicochemical properties and enzymic degradation
AB Hydroxyethyl starch (HES) as a plasma
expander was subjected to measurements of fundamental physicochem.
properties as a polymer. In order to investigate the efficacy and
security for the clin. use, enzymic degradation of HES was studied in vitro
with Bacillus amyloliquefaciens α-amylase (BLA) and with human
plasma. A fast decrease of the intrinsic viscosity, η, of HES
in the initial stage of degradation with BLA was followed by a gradual
decrease and approach to limiting values, which depended on the samples.
Original and degraded samples of HES were fractionated by gel filtration,
and several properties of the fractions were measured. Different
relations between η and weight average mol. wts. (Mw) were obtained, and the
structure and some properties of the fractions should be different among
the original samples; HES is a highly branched polymer. Characteristics
of HES were noticeable heterogeneities not only in the mol. weight spread
over very wide region but also in the structure and the degree
of substitution (D.S.) both inter- and intra-molecularly. Two
samples of HES, 6-HES and Hessol, having high values of Mw and d.s.,
contained fractions of very high mol. weight and were degraded insufficiently
with enzyme. Remaining fragments of high-mol. weight could not permeate the
kidney membrane, suggesting the possibilities of remaining and/or
accumulation of them in human bodies. On the other hand, Hespander,
having small a Mw and d.s. was degraded as fast as amylopectin. In this

HES the substitution of hydroxyethyl groups into amylopectin do not affect the validity to prolong the persistence time of the plasma expander. Considerable amount of small mols. in Hespander, contained originally and produced by degradation, could be excreted rapidly and may impair the kidney function, besides the very small mols. may be released through vascular wall resulting in the reduction of efficacy as the plasma expander and the possibilities of accumulation into organs and tissues in human bodies. Thus, the efficacy and security of the present products of HES are not reliable as plasma expanders, and further investigations and improvements should be required for the clin. use.

AN 1987:502587 HCAPLUS <<LOGINID::20090217>>
DN 107:102587
OREF 107:16633a,16636a
TI Hydroxyethyl starch as a plasma expander: physicochemical properties and enzymic degradation
AU Ohta, Kazuko; Kawahara, Kazuo
CS Sch. Pharm. Sci., Nagasaki Univ., Nagasaki, Japan
SO Seitai Zairyo (1987), 5(1), 3-13
CODEN: SEZAEH; ISSN: 0910-304X
DT Journal
LA Japanese

L15 ANSWER 25 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Peritoneal dialysis solutions
AB A solution for peritoneal dialysis contains hydroxyethyl starch (mol. weight ≥3 + 104 Dalton; 0.25-0.70 degree of substitution) as osmotic carrier. This carrier is not absorbed and, therefore, does not affect the blood sugar level. Thus, a solution for peritoneal dialysis contains hydroxyethyl starch (mol. weight 200,000 Dalton; 0.5 mol hydroxyethyl ether/mol anhydroglucose) 70 g, Na+ (as chloride and lactate) 132, Cl- (as Na salt) 102, Mg2+ as lactate) 0.5, Ca2+ (as lactate) 1.75, lactate 40 mmol and water to 1 L.
AN 1986:193196 HCAPLUS <<LOGINID::20090217>>
DN 104:193196
OREF 104:30487a,30490a
TI Peritoneal dialysis solutions
IN Kramar, Reinhard; Ferber, Hubert
PA Laevosan G.m.b.H. und Co. K.-G., Austria
SO Eur. Pat. Appl., 11 pp.
CODEN: EPXXDW
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 170275	A1	19860205	EP 1985-109613	19850731 <--
	EP 170275	B1	19891227		
	R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
	AT 48947	T	19900115	AT 1985-109613	19850731 <--
PRAI	DE 1984-3428201	A	19840731	<--	
	EP 1985-109613	A	19850731	<--	

L15 ANSWER 26 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Production and study of properties of hydroxyethyl starch - the hemodynamic component of a blood substitute - oxygen carrier from perfluorohydrocarbons
AB The 13C-NMR of hydroxyethyl starch (HES) [9005-27-0], prepared by alkylation of high-mol.-weight amylopectic starch [9005-25-8] with ethylene oxide [75-21-8] under alkaline condition, indicates

that 70-80% substitution is at C-2 and significantly less at C-6. The degree of substitution of HES was 0.6. The HES is rapidly cleaved by the amylolytic enzymes because of its preferential C-6 constitution. Chromatog. behavior, enzymic cleavage, and in vivo enzymic hydrolysis property in the rabbit blood of the HES are compared with other low-and high-mol.-weight HES samples (Plasmosteril, 6-HES) and the effect of the degree of substitution on these properties is discussed.

AN 1985:190904 HCAPLUS <<LOGINID::20090217>>
DN 102:190904
OREF 102:29876h,29877a
TI Production and study of properties of hydroxyethyl starch - the hemodynamic component of a blood substitute - oxygen carrier from perfluorohydrocarbons
AU Kudryashov, L. I.; Yarovaya, S. M.; Chlenov, M. A.; Bryantsev, B. I.; Grineva, L. P.; Telkova, T. N.; Kryukova, G. N.; Alekseeva, G. S.; Titov, E. V.; et al.
CS Vses. NII Tekhnol. Krovezamenitelei Gorm. Prep., Moscow, USSR
SO Ftoruglerodnye Gazoperenosyashchie Sredy (1984), 110-15. Editor(s): Beloyartsev, F. F. Publisher: Akad. Nauk SSSR, Nauchn. Tsentr Biol. Issled., Pushchino, USSR. CODEN: 53IFA5
DT Conference
LA Russian

L15 ANSWER 27 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Hydroxyethylated starch as a hemodynamic component of "artificial blood"
AB Brief details of preparation of hydroxyethyl starch (HES) [9005-27-0], and physicochem. and biol. properties are described. The hydroxyethylation was done at 65-95° at a pressure 0.8-1.5 atm (degree of substitution 3-30%). Mol. wts., viscosity, optical rotation, and refractive index (RI) for 5 samples prepared by the method were approx. the same. The RI and the optical rotation were not affected by the mol. weight of the HES samples (.apprx.19,000-660,000). The HES was nontoxic, nonpyrogenic, nonimmunogenic, and the circulation properties depend on the properties of the polymer. In spite of the high mol. weight of the polymer (106), it was totally cleaved, and the RI and the optical rotation were not affected by the mol. weight of the HES samples.

AN 1985:190903 HCAPLUS <<LOGINID::20090217>>
DN 102:190903
OREF 102:29873a,29876a
TI Hydroxyethylated starch as a hemodynamic component of "artificial blood"
AU Polushina, T. V.; Bystritskii, G. I.; Prostakova, T. M.; Luk'yanova, N. A.; Fedorova, V. A.
CS Tsentr. NII Gematol. Pereliv. Krovi, Moscow, USSR
SO Ftoruglerodnye Gazoperenosyashchie Sredy (1984), 103-9. Editor(s): Beloyartsev, F. F. Publisher: Akad. Nauk SSSR, Nauchn. Tsentr Biol. Issled., Pushchino, USSR. CODEN: 53IFA5
DT Conference
LA Russian

L15 ANSWER 28 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Analysis on the causes of errors in the determination of degree of substitution in hydroxyethyl starch
AB Samples of hydroxyethyl starch [9005-27-0] (blood substitute) were subjected to pretreatment (heat dry, evaporation, precipitation, spray dry) prior to anal. of its extent of substitution.

Best results were obtained by spray dry and heat dry methods. Sample pretreatments appeared to be the causes of errors in the determination of the extent of substitution in hydroxyethyl starch.

AN 1985:12289 HCAPLUS <<LOGINID::20090217>>
DN 102:12289
OREF 102:2009a,2012a
TI Analysis on the causes of errors in the determination of degree of substitution in hydroxyethyl starch
AU Li, Huaju; Qiu, Cuihua; Ding, Xin
CS Inst. Hematol., Chin. Acad. Med. Sci., Beijing, Peop. Rep. China
SO Yaowu Fenxi Zazhi (1984), 4(5), 296-7
CODEN: YFZADL; ISSN: 0254-1793
DT Journal
LA Chinese

L15 ANSWER 29 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Chemical characterization of the persistent fraction of hydroxyethyl starch in rat serum and spleen
AB Hydroxyethyl starch (HES) [9005-27-0] found in rat serum and spleen after single and daily administrations of 0.9 g/kg for 1 wk was characterized by gas-liquid chromatog. There was very little difference in the degree of substitution (D.S.) and molar substitution (M.S.) of HES in serum samples obtained 1 h and 57 days after multiple doses and of HES in spleen samples obtained 1 h and 168 days after a single dose of HES. The small increase in D.S. and M.S. was due to a decrease in the glucose content and not to a change in the ratio of mono- to polysubstituted glucoses.
AN 1983:605561 HCAPLUS <<LOGINID::20090217>>
DN 99:205561
OREF 99:31449a,31452a
TI Chemical characterization of the persistent fraction of hydroxyethyl starch in rat serum and spleen
AU Sum, Check Y.; Lai, Chii Ming; Yacobi, Avraham; Kalhorn, Thomas F.
CS Am. Crit. Care, McGaw Park, IL, 60085, USA
SO Life Sciences (1983), 33(20), 1989-94
CODEN: LIFSAK; ISSN: 0024-3205
DT Journal
LA English

L15 ANSWER 30 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Single-tube bromine absorption method for determination of the degree of substitution in hydroxyethyl starch
AB The method of P. W. Morgan (1946) is described. A single tube containing Br instead of 2 tubes (one containing Br and the other containing AgNO3) was used in the anal. HI cleaved ether linkages and the hydroxyethyl groups decomposed quant. into EtI and C2H4, which could be determined quant. EtI (1 mol) reacted with 3 mols of Br to form 3 mols of I, whereas 1 mol of C2H4 reacted with 1 mol of Br to produce 1 mol of dibromoethane. The degree of substitution of hydroxyethyl starch [9005-27-0] for use as a plasma expander was 0.97-1.14%.
AN 1982:568976 HCAPLUS <<LOGINID::20090217>>
DN 97:168976
OREF 97:28077a,28080a
TI Single-tube bromine absorption method for determination of the degree of substitution in hydroxyethyl starch
AU Li, Huaju
CS Inst. Hematol., Chin. Acad. Med. Sci., Peop. Rep. China
SO Zhonghua Xueyexue Zazhi (1981), 2(4), 249-50

CODEN: CHTCD7; ISSN: 0253-2727
DT Journal
LA Chinese

L15 ANSWER 31 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Hydroxyethyl starches useful as plasma substitutes
AB Hydroxyethyl starch [9005-27-0] useful as plasma substitutes is prepared by gelatinizing with hot H2O waxy grain starch containing ≥99% amylopectin, treating the gelled starch with ethylene oxide in the presence of alkali to form a hydroxyethyl starch with a 0.50-0.55 degree of substitution, hydrolyzing the starch under mildly acidic conditions to bring the viscosity number to 0.09-0.14 dl/g essentially without changing the degree of substitution, decolorizing the material, removing by-products by reverse osmosis, and drying and powdering the product. For example, 79.55 kg wax cornstarch was gelatinized with hot H2O, treated with 35 kg ethylene oxide, and hydrolyzed in HCl solution, decolorized with 3.75 kg activated C, purified, dried and ground to give 51 kg of a hydroxyethyl starch having 0.51 degree of substitution, and viscosity number of 0.120 dl/g. A clear, sterile, plasma substitute was prepared from 30 g hydroxyethyl starch, 500 mL distilled H2O, and 0.9% NaCl. Red blood cells showed good suspension stability in solns. of this type, and the solns. greatly increased arterial blood pressure when infused into rabbit.
AN 1978:517894 HCAPLUS <<LOGINID::20090217>>
DN 89:117894
OREF 89:18139a,18142a
TI Hydroxyethyl starches useful as plasma substitutes
IN Omoto, Hideo
PA Japan
SO Ger. Offen., 20 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2700011	A1	19780706	DE 1977-2700011	19770103 <--
DE 2700011	C2	19890803		
PRAI DE 1977-2700011	A	19770103 <--		

L15 ANSWER 32 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Molecular weight, substitution and impurity studies of some hydroxyethyl starch plasma volume expanders
AB Volex and Plasmatonin com. brands of hydroxyethyl starch [9005-27-0] plasma expanders exhibited d.s. of 0.65 and 0.57, resp., mol. weight of 397,000 and 477,000, resp., and ethylene glycol [107-21-1] % of 0.01 and 0.01%, resp. D.s. is an important parameter and largely dets. the rate of elimination of the substance from the blood. Ethylene glycol, a persistent impurity in these infusion solns., was determined by gas chromatog. Volex also contained 3 ppm acetophenone [98-86-2] and 3 ppm 2-phenyl-2-propanol [617-94-7] as impurities.
AN 1976:598134 HCAPLUS <<LOGINID::20090217>>
DN 85:198134
OREF 85:31563a,31566a
TI Molecular weight, substitution and impurity studies of some hydroxyethyl starch plasma volume expanders
AU De Belder, A. N.; Larsson, Sven O.; Markstrom, Sylvia
CS Dep. Chem. Res., Pharm. AB, Uppsala, Swed.

SO IRCS Medical Science: Library Compendium (1976), 4(10), 457
CODEN: IRLCDZ; ISSN: 0305-6651
DT Journal
LA English

L15 ANSWER 33 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Hydroxyethyl starches
AB Hydroxyethyl starches with 2-(hydroxyethyl)glucose to 6-(hydroxyethyl)glucose molar ratios of 0.73-1.6, useful as blood plasma expanders (no data), were prepared by reaction of ethylene oxide with starch or hydrolyzed starch in the presence of NaOH or KOH (alkali-starch molar ratio >2.0). Addition of pyridine [110-86-1] or an inorg. salt, e.g. Na2SO4 [7757-82-6], to the reaction mixture impeded substitution of hydroxyethyl at the 2-position. Thus, 3.2 g ethylene oxide gas was introduced during 3 hr into an aqueous solution at 40° containing 4.05 g waxy maize starch and 5.0 g NaOH, after stirring 2 hr and cooling, cation exchange resins were added, the resins filtered, and Me2CO added to precipitate 4.0 g hydroxyethyl starch, degree of substitution 0.75 and 2-(hydroxyethyl)glucose to 6-(hydroxyethyl)glucose ratio 0.78.
AN 1975:533822 HCAPLUS <<LOGINID::20090217>>
DN 83:133822
OREF 83:21055a,21058a
TI Hydroxyethyl starches
IN Satoda, Isao
PA Morishita Pharmaceutical Co., Ltd., Japan
SO Brit., 9 pp.
CODEN: BRXXAA
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI GB 1395777	A	19750529	GB 1972-56060	19721205 <--
PRAI GB 1972-56060	A	19721205 <--		

L15 ANSWER 34 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Hydroxyethyl starches
AB After alkali treatment, neutralization with mineral acids or cation-exchange resins, and pulverization, starches or partially hydrolyzed starches (mol. weight of anhydrous glucose unit = 162) were reacted with hydroxyethylating agents in the presence of acids as the catalyst to give hydroxyethyl starches (2-hydroxyethylglucose/6-hydroxyethyl glucose mole ratio = 0.1-2), useful for blood serum expanders. For example, 2 g soluble starch (95% amylopectin) was dissolved in 4 ml of 5% aqueous NaOH, neutralized with 20% HCl, mixed with 30-40 ml iso-PrOH, dried, milled, and the powders (2 g) and 1 ml of (1/32)N H2SO4 was kept for 20 hr at 25-35.deg. with 2 ml ethylene oxide, mixed with 3-10 ml H2O and then 30-80 ml iso-PrOH to give hydroxyethyl starch [9005-27-0] (degree of substitution 0.061 and 2-/6-hydroxyethyl glucose mole ratio = 0.2).
AN 1974:439357 HCAPLUS <<LOGINID::20090217>>
DN 81:39357
OREF 81:6301a,6304a
TI Hydroxyethyl starches
IN Hoshida, Isao
PA Morishita Pharmaceutical Co., Ltd.
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent

LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 49010287	A	19740129	JP 1972-52807	19720526 <--
PRAI	JP 1972-52807	A	19720526 <--		

L15 ANSWER 35 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Freezing blood using a hydroxyalkyl starch as a cryoprotective agent
AB A water-soluble hydroxyethyl or hydroxypropyl starch with an 0.6-0.8 degree of substitution, average mol. weight of 70,000, and at a final concentration of 12-14% (weight/vol) of the final blood solution is an exceptional metabolizable, extracellular, cryoprotective agent for erythrocytes. The blood solution is rapidly frozen at -196°. After thawing plasma H is 283.3 mg/100 ml; average erythrocyte recovery, 97.4%; and average saline stability, 83.4%.
AN 1974:25491 HCAPLUS <<LOGINID::20090217>>
DN 80:25491
OREF 80:4207a
TI Freezing blood using a hydroxyalkyl starch as a cryoprotective agent
IN Knorpp, Charles T.
PA United States Dept. of the Navy
SO U.S., 2 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3758382	A	19730911	US 1968-747806	19680726 <--
PRAI	US 1968-747806	A	19680726 <--		

L15 ANSWER 36 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Hydroxyethyl starch useful as plasma substitute
AB Hydroxyethyl starch (I) was partially hydrolyzed with 0.01 .apprx. 0.03 N HCl to give a plasma substitute, mol. weight 40,000 .apprx. 90,000. E.g., 28 g I (hydroxyethyl degree of substitution 0.5-0.6) in 80 ml H2O was heated at 50°, boiled 60 min with 3.5 ml 0.5 N HCl, 1.0 g active carbon added, adjusted to pH 7.0-7.4 with N NaHCO3, 50 mg pyrogen-remover such as Raney Ni added, filtered, and brought to 400 ml with water. The final preparation was transparent, pyrogen free, and similar to serum in viscosity and osmotic pressure.
AN 1973:445807 HCAPLUS <<LOGINID::20090217>>
DN 79:45807
OREF 79:7401a,7404a
TI Hydroxyethyl starch useful as plasma substitute
IN Irikura, Tsutomu; Shirai, Issei; Tada, Mamoru; Tamada, Teruki; Imai, Jun; Kudo, Yoshitaka; Okada, Takamichi; Kato, Atsuyuki; Ishida, Ryozo; Hirayama, Takashi
PA Kyorin Pharmaceutical Co., Ltd.
SO Jpn. Tokkyo Koho, 9 pp.
CODEN: JAXXAD
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 48016173	B	19730519	JP 1970-50453	19700611 <--
PRAI	JP 1970-50453		19700611	<--	

L15 ANSWER 37 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Hydroxyethyl starch as a plasma expander.
III. Effects of hydroxyethyl starches with various degrees of substitution on the blood pressure of rats
AB Hydroxyethyl starch (HES) [9005-27-0] with 0.47.sim.0.62 degree of substitution (DS, the ratio of number of glucose residues substituted by -EtOH group to the total number of glucose residues) appeared to be a useful blood substitute. Blood pressure in rats was well maintained in the presence of HES with DS 0.47-0.92. However, HES with DS 0.66.sim.0.92 increased the sedimentation rate of erythrocytes.
AN 1973:413393 HCAPLUS <<LOGINID::20090217>>
DN 79:13393
OREF 79:2115a,2118a
TI Hydroxyethyl starch as a plasma expander.
III. Effects of hydroxyethyl starches with various degrees of substitution on the blood pressure of rats
AU Irikura, Tsutomu; Kudo, Yoshitaka
CS Kyorin Chem. Lab., Tokyo, Japan
SO Oyo Yakuri (1972), 6(7), 1549-55
CODEN: OYYAA2; ISSN: 0300-8533
DT Journal
LA Japanese

L15 ANSWER 38 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Blood plasma substitute
AB Pyrogen-free plasma substitutes containing hydroxyethyl starch (I) of substitution degree 0.55 and viscosity number 0.08-0.14 which had lower toxicity than dextran-75 were prepared Thus, 28 g I (degree of substitution 0.55, viscosity number 0.1) was dissolved in 80 ml H2O at 50 boiled 1 hr with 35 ml 0.5N HCl and and 0.1-1.0 g charcoal, pH adjusted to 6.2 ± 0.5 by N NaHCO3 or N NaOH. If the solution was not pyrogen-free it was treated with 5-50 mg Raney Ni. The I solution was used for the preparation of 100 ml blood substitute containing I 6.0, NaCl 0.5, KCl 0.03, Ca:Cl2.2H2O 0.02, Na lactate 0.224, glucose 1.0%. This plasma substitute had an i.v. LD50 of >262 mg/kg in male rats as compared to 136 mg/kg of dextran-75.
AN 1973:122201 HCAPLUS <<LOGINID::20090217>>
DN 78:122201
OREF 78:19641a,19644a
TI Blood plasma substitute
IN Irikua, Tsutomu; Shirai, Kazunari; Tada, Mamoru; Tamada, Terumi; Imai, Jun; Okada, Kodo; Ishida, Ryozo
PA Kyorin Pharmaceutical Co., Ltd.
SO Ger. Offen., 32 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2201669	A1	19730222	DE 1972-2201669	19720114 <--
	DE 2201669	B2	19800710		
	DE 2201669	C3	19810507		
	JP 48028618	A	19730416	JP 1971-63838	19710821 <--
	JP 54039444	B	19791128		

	GB 1339210	A	19731128	GB 1971-60496	19711229 <--
	CA 965006	A1	19750325	CA 1971-131469	19711230 <--
	HU 164073	B	19731228	HU 1972-KI660	19720103 <--
	AU 7237712	A	19730712	AU 1972-37712	19720107 <--
	BE 778156	A1	19720516	BE 1972-51591	19720118 <--
	FR 2150272	A1	19730406	FR 1972-1590	19720118 <--
	ZA 7208667	A	19730530	ZA 1972-8667	19720202 <--
	US 3937821	A	19760210	US 1973-416725	19731119 <--
PRAI	JP 1971-63838	A	19710821	<--	
	US 1971-213553	A1	19711229	<--	

L15 ANSWER 39 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Preparation, properties, and physicochemical characterization of hydroxyethyl starch for use as a volume-extender for blood plasma
AB A study of the phys. chemistry and biochemistry of hydroxyethyl starch (I), and the manner in which these factors are influenced by the mol. of the derivatized polysaccharide was made. Two terms which are often used interchangeably when describing I, namely, molar substitution (the number of moles of ethylene oxide which react per mole of monomer unit) and the degree of substitution (the mole fraction of anhydroglucose units which carry substituent groups) were differentiated. A technique whereby the content of unsubstituted glucose residues may be rapidly obtained, and thus the determination of the degree of substitution is, for the 1st time, a relatively simple procedure, is developed. The in vitro degradation of I by α-amylase was also studied. On the basis of these studies, a math. model was constructed for the substitution pattern in I which successfully predicts the seeming anomaly of materials of molar substitution >1 being hydrolyzed by α-amylase.
AN 1972:111050 HCAPLUS <<LOGINID::20090217>>
DN 76:111050
OREF 76:17927a,17930a
TI Preparation, properties, and physicochemical characterization of hydroxyethyl starch for use as a volume-extender for blood plasma
AU Greenwood, C. T.
CS Dep. Chem., Edinburgh Univ., Edinburgh, UK
SO U. S. Nat. Tech. Inform. Serv., AD Rep. (1971), No. 732785, 33 pp. Avail.: NTIS
From: Govt. Rep. Announce. (U. S.) 1972, 72(1), 24
CODEN: XADRCH
DT Report
LA English

L15 ANSWER 40 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Hydroxyethyl starch as a plasma expander. 1
AB Hydroxyethyl starch (I) disappeared more slowly from rabbit blood than a soluble starch (II) and was more resistant to α-amylase from pig pancreas in vitro. In proportion to the increase in degree of substitution in I, the duration of I in blood after i.v. infusion was increased and the amount excreted in 24-hr urine was decreased. The infusion of II significantly increased the blood sugar levels while that of I with varying degree of substitution had no effect.
AN 1972:81122 HCAPLUS <<LOGINID::20090217>>
DN 76:81122
OREF 76:13009a,13012a
TI Hydroxyethyl starch as a plasma expander. 1
AU Tamada, Terumi; Okada, Kodo; Ishida, Ryozo; Irikura, Tsutomu
CS Kyorin Chem. Lab., Tokyo, Japan

SO Oyo Yakuri (1970), 4(3), 505-10
CODEN: OYYAA2; ISSN: 0300-8533
DT Journal
LA Japanese

L15 ANSWER 41 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Hydroxyethyl starch as a plasma expander.
II. Influences of molecular weight of hydroxyethyl
starch on its physicochemical and biological properties
AB Hydroxyethyl starch (HES) was studied concerning the
relation between its physicochem. properties and biol. activities to
obtain the most desirable plasma expander. Since degree
of substitution (DS) influences the biol. activity, the mol. weight
effect was examined with DS at 0.43-0.55. After infusion of 15 ml/kg of
6% HES solution in saline into rabbits the persistence of polysaccharides in
blood was determined HES with higher mol. weight was more persistent with
DS constant The mol. weight had little influence on the amount of reducing
sugars formed when resistance against pig pancreas α-amylase was
tested in vitro. HES with DS 0.54 and mol. weight about 216,000 was
hydrolyzed with HCl and the physicochem. properties and the biol.
activities of the hydrolyzates were examined It appeared that hydrolysis of
HES with HCl resulted in separation into 2 or more intermediate lower mol.
weight
polysaccharides besides the reducing sugar liberation.
AN 1971:123531 HCAPLUS <<LOGINID::20090217>>
DN 74:123531
OREF 74:19967a,19970a
TI Hydroxyethyl starch as a plasma expander.
II. Influences of molecular weight of hydroxyethyl
starch on its physicochemical and biological properties
AU Tamada, Terumi; Okada, Kodo; Ishida, Ryozo; Kamishita, Katsuyuki; Irikura,
Tsutomu
CS Kyorin Chem. Lab., Tokyo, Japan
SO Chemical & Pharmaceutical Bulletin (1971), 19(2), 286-91
CODEN: CPBTAL; ISSN: 0009-2363
DT Journal
LA English

L15 ANSWER 42 OF 42 HCAPLUS COPYRIGHT 2009 ACS on STN
TI Physicochemical studies on starches. XXXIII. Some physicochemical
properties of hydroxyethyl starch used as a volume
extender for blood plasma
AB cf. CA 67: 83155m. Hydroxyethyl starch (I) of
degree of substitution 0.83-0.93 and intrinsic
viscosity, [η], of 13-27 is used as a volume extender for blood
plasma. The mol. weight of such physiol. I is about 5 times that of
a dextran (II) with the same [η]. Data for I([η] and weight-average mol.
weight, resp.) are 13.5, 106,000; 18.4, 184,000; 20.9, 230,000; 23.4,
310,000; and 26.6, 320,000. Corresponding data for II are 13.3, 18,400;
18.2, 31,400; 21.4, 50,000; and 25.2, 65,600. Number-average mol. wts. were
determined by sedimentation and light scattering.
AN 1967:509868 HCAPLUS <<LOGINID::20090217>>
DN 67:109868
OREF 67:20767a,20770a
TI Physicochemical studies on starches. XXXIII. Some physicochemical
properties of hydroxyethyl starch used as a volume
extender for blood plasma
AU Greenwood, Charles T.; Hourston, D. J.
CS Univ. Edinburgh, Edinburgh, UK
SO Staerke (1967), 19(8), 243-6
CODEN: STRKA6; ISSN: 0038-9056

DT Journal
LA English